

In The United States Patent and Trademark Office

Date: 08/15/2007

In re Application of: Kamallesh Srivastava, et al.

Filed: 05/31/2001

Application No.: 09/870,534

Examiner: Lynette T.Umez Eronini

For: METHOD OF IMPROVING

Art Unit: 1765

UNIFORMITY OF ETCHING OF

Confirmation No. 1332

A FILM ON AN ARTICLE

REPLY BRIEF

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Examiner's Answer mailed June 18, 2007, Appellants offer the following remarks in rebuttal.

Paragraph 1, pages 3-4 of the Examiner's Answer:

With respect to claims 1, 4 and 5, the Examiner on page 3 concludes that Erk "...reads on rotating the article while in the etchant for an amount of time so as to cause improved uniformity of etching of the film across the entire article compared to etching without rotating the article..." [emphasis added].

And then at the end of paragraph 1., the examiner states that it "...would appear that any wafer, including one with solder bumps, would benefit from the uniform etching process of Erk. Appellants have not shown anything unexpected by employing a conventional wafer with solder bumps in a known process for achieving uniform etching." [emphasis added].

These same erroneous remarks are repeated in the "Response to Argument" section of the Examiner's Answer.

As Appellants pointed out in their Appeal Brief, Erk is directed to the etching of a bare silicon wafer to remove residual effects of sawing and lapping. There is nothing in Erk to indicate that Erk would be beneficial to the uniform etching of a film, much less a film in the presence of solder bumps. This is especially true since Appellants found the problem of the solder bumps altering the etching behavior of the film. Thus, there is no teaching in Erk that would "cause improved uniformity of etching of the film" as suggested by the Examiner.

The Examiner also noted that it "would appear that any wafer" would benefit from Erk. That it "would appear" to the Examiner is incorrectly applying the standards of patentability as it should appear to a person skilled in the art. The Examiner, however, is substituting her opinion for that of a person skilled in the art and this is erroneous.

Finally, the Examiner concludes that Appellants have failed to show anything unexpected. Appellants have demonstrated that either 34% or 78% improvement in uniform etching can be obtained with Appellants' method. Assuming arguendo that the combination of Erk and Datta might result in some improvement in etching, the amount of the improvement found by Appellants is surprising and unexpected.

However, in the "Response to Arguments" section of the Examiner's Answer, the Examiner states:

Appellants' results are acknowledged but unpersuasive because Appellants have failed to show the amount of improvement would overcome the applied references. Since the combined teaching of the references would have been provided for rotating the wafer with a solder bump, then the alleged results cannot overcome the rejection. *Examiner's Answer, p. 12.*

The Examiner indicates that the amount of improvement failed to overcome the applied references. Again, depending on the method utilized, Appellants achieved improvements of 34% or 78% in uniformity. These results are very significant and yet the Examiner appears to reject them out of hand. Indeed, the Examiner's language implies that no amount of improvement would be sufficient to overcome the references. Such a stance is believed to be erroneous in view of MPEP §716.02(c) wherein evidence of unexpected results are to be weighed by the Examiner.

Paragraph 2, pages 4-5 of the Examiner's Answer:

The Examiner concludes that it "would have been obvious to modify Erk in view of Datta by using Takeshi's step...for the purpose of improving the method of detecting defects in semiconductor processing." [emphasis added].

These same erroneous remarks are repeated in the "Response to Argument" section of the Examiner's Answer.

Appellants' method is directed to the problem of improving the uniformity of a film having a plurality of solder bumps. As noted above, the Examiner cites Takeshi (in combination with Erk and Datta) for solving the problem of improving the method of detecting defects in semiconductor processing. That is, the Examiner has combined Erk, Datta and Takeshi to teach a solution to a problem not faced by Appellants! Accordingly, and as explained in more detail in Appellants' Appeal Brief, Takeshi as used with Erk and Datta should be considered to be nonanalogous art.

Paragraph 4, pages 6-8 of the Examiner's Answer:

The Examiner's rationale for the rejection of claims 8, 11, 12 and 14 is substantially the same as that for rejecting claims 1, 4, 5 and 6. Appellants' remarks in rebuttal with respect to claims 1, 4, 5 and 6 are equally applicable here and are incorporated by reference herein.

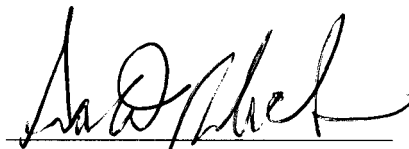
Paragraph 5, page 8 of the Examiner's Answer:

The Examiner's rationale for the rejection of claims 9 and 10 is substantially the same as that for rejecting claims 2 and 3. Appellants' remarks in rebuttal with respect to claims 2 and 3 are equally applicable here and are incorporated by reference herein.

Summary:

In view of all of the preceding remarks and including the reasons presented in Appellants' Appeal Brief, it is submitted that the Examiner's various decisions in rejecting Appellants' claims were in error and reversal of the Examiner's decisions is respectfully requested.

Respectfully Submitted,
Kamalesh Srivastava, et al.

A handwritten signature in black ink, appearing to read 'Ira D. Blecker', written over a horizontal line.

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